



Research Brief

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The Demography of Developing Northern Australia

Andrew Taylor

Hannah Payer

Huw Brokensha

Demography and Growth Planning, Northern Institute
andrew.taylor@cdu.edu.au

RESEARCH AIM

In this brief we analyse data for and make commentary on the population related aspirations inherent in the Developing Northern Australia White and Green Papers. The aim is to identify the opportunities and challenges based on the pre-existing population characteristics and to assess the capacity of the region to meet the population targets and desired changes outlined in Australian Government's agenda.

KEY FINDINGS

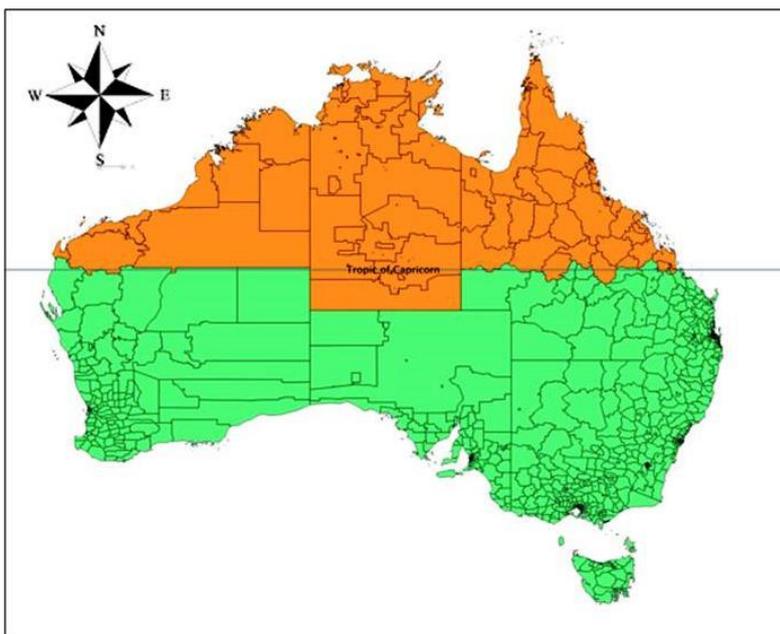
- The Green Paper report on Developing Northern Australia identified three important population aspirations which can be distilled as:
 1. Significantly growing the populations of 'urban zones' in the Northern Australia;
 2. Improving net interstate migration flows between the north and remainder of Australia; and
 3. Increasing international migration to the region.
- The White Paper on Developing Northern Australia has the targets of developing several cities of more than one million residents and a total population of between four and five million people to by the year 2060. Our analysis suggests the likelihood of reaching these targets is very low, with the 2014 population of the region estimated as around 1.3 million residents.
- Analysis of a range of data relating to the Green Paper population aspirations shows Northern Australia is increasingly focused towards the larger urban centres which are home to an increasing proportion of the region's Indigenous and non-Indigenous population
- Net migration flows for the region are male biased, particularly for overseas migrants and Northern Australia fares poorly in retaining women in their late teens and early 20s as well as in pre and post retirement years.
- Consequently, there is a strong and growing male bias across age groups and redressing this is critical to securing growth based on internally sourced capital and labour.
- The dual issues of impending population ageing and large declines in the region's share of the national Indigenous population represent major challenges to the region's financial capacity to support existing residents, including the most vulnerable and marginalised residents.
- Our research highlights the imperative that rollout of White Paper initiatives are accompanied by contextualized research on population scenarios (especially projections) under a range of development scenarios and outcomes.

I. Background

The sizes, compositions and ways in which populations change are at the forefront of determining economic development pathways for nations, states, regions and communities. In northern parts of developed nations, populations are relatively small, sparsely settled (although becoming increasingly urbanised) and subject to rapid and significant changes (Carson et al., 2011). In addition, northern areas, more so than others on a per-capita basis, receive and send out transient non-resident populations including non-resident workers (Brokensha et al., 2013), tourists and mobile Indigenous peoples (Carson and Carson, 2014). A growing body of literature has outlined the complexities of population systems in northern developed contexts and the importance of understanding the great diversity in the population characteristics of northern areas, as well as the differences to southern areas (Hörnström et al., 2015).

In 2015 the Australian Government released its White Paper on Developing Northern Australia titled 'Our North, Our Future: A Vision for Developing Northern Australia' (Australian Government, 2015). The White Paper sets out policies and initiatives aspiring to deliver further and substantial economic development to the northern parts of the nation. The key areas in the policy are around five industries which the Government feels have the most potential for growth. These are food and agribusiness; resources and energy; tourism and hospitality; international education; and healthcare, medical research and aged care (ibid. p. 3). Northern Australia is defined in the policy as all areas north of the Tropic of Capricorn with the addition of the Central Australia (desert) area of the jurisdiction of the Northern Territory (NT), incorporating the service centre town of Alice Springs and its surrounding region (Figure 1).

Figure 1 - Map of Northern Australia defined in the White Paper on Developing Northern Australia



Source: Constructed by the authors using open source GIS software and ABS digital boundaries

Both the White Paper and its precursor, the Green Paper on Developing Northern Australia, called 'Pivot North: Inquiry into the Development of Northern Australia' (Australian Government, 2014a),

discussed the significances of population size and changes in the population for determining economic development in the region. In both documents, the small population size in Northern Australia was identified as a critical barrier and this was reflected in the population related targets and ambitions. Indeed the Pivot North report branded the small population as **the** ‘...key impediment to be overcome.’ (Australian Government, 2014b, p. 109). This focus on increasing the size of the population in Northern Australia is in common with past iterations of northern Australian development policies and programs which similarly connected economic growth potential with large increases in population size (Coombs, 1947; Harris, 1992; Carson, 2011).

The specific population related targets and ambitions in the Green Paper were:

1. A focus on substantially growing ‘urban zones’: “...the White Paper will consider options for building on existing key urban zones — such as Darwin, Cairns, Townsville and Karratha — with the aim of substantially increasing their population.” (p. 54)
2. Improve net internal migration flows: “Greater migration from elsewhere in Australia would help boost population... The White Paper will explore practical options to remove some of the impediments to internal migration to northern Australia — recognising governments have limited ability to directly affect people’s decisions as to where they live and work.” (p. 54)
3. Increase international migration: “...the Australian Government is consulting across governments, industry, business and communities on ways migration policy can help increase the availability of skilled and unskilled labour, including in the north.” (p. 56)
(Adapted by the authors from: Australian Government, 2014a)

In the White Paper, population related ambitions and policies are not so well defined, focusing instead on two main targets. The first is to grow several cities to more than a million residents in order to “...underwrite substantial exports of planning, design, architecture and construction services to the Tropics.” (Australian Government, 2015, p. 3). In 2014 the largest city in Northern Australia was Townsville with a population of 192,000. The second target in the White Paper is to achieve large absolute growth in the size of the region:

Development will require many more people living in the north. Transformation won’t happen if its population inches up by a few hundred thousand over the next 20 years. It would remain a high cost, small scale economy; more of a pilot project than a powerhouse. We need to lay the foundations for rapid population growth and put the north on a trajectory to reach a population of four to five million by 2060. (Australian Government, 2015, p. 4)

In 2014 the population of the region was estimated at 1.3 million residents (Authors calculations based on ABS 2015).

It is clear the gap between the White Paper targets and present-day populations is large. While population targets and ambitions are laid out and identified as vital to northern development in both reports, no research has previously been undertaken to assess the compatibility of baseline demographic conditions in Northern Australia with the policy’s ambitions. There is no research-based review available, for example, on the critical issue of who comes, who leaves and who stays

in the region. Such knowledge is vital in the context of the opportunities and barriers for growing the population and achieving the population goals embedded in the Green Paper.

In this brief we report on data extracted from the output files from the 2006 and 2011 Australian Censuses and analysed against the specific population targets and aspirations outlined above. The aims are to identify whether current population characteristics might be compatible with the goals of the White and Green papers and to assess how they might change, or be induced to change, to meet these. This provides the basis for subsequent commentary on the voracity of the population-related components of the present-day Developing Northern Australia agenda and discussion on what might need to change to help achieve the Government's goals.

2. North Australian population aspirations

The demographic context in Northern Australia is fundamentally different to southern parts with the most obvious being the relatively small size of the population in the north and its distribution over sparsely populated areas (although a significant share live in cities in the north). The need to dramatically increase the size of the population in Northern Australia mirrors sentiments in past northern development policies and initiatives (for example, Coombs, 1947; Harris, 1992). However, in addition to absolute size, the composition of populations are crucial to determining economic development capacity (Carson et al., 2011). In northern developed regions there are a range of commonalities in relation to population compositions which determine that demographic change does not follow the same trajectories as might be expected elsewhere. One example is the high proportion of Indigenous peoples, which in the Australian context at least, reduces the median age. With a dearth of seniors in the population this makes for an imbalance of population across age groups (Zeng et al., 2015).

Demographic differences, both within northern regions and compared to elsewhere, mean that normal relationships between population and economy may not apply. For example, during 2015 the economy of the NT was indicated as booming (with low unemployment and high levels of private investment) at the same time as record numbers of residents were leaving for interstate; some 26,000 in eighteen months, or the equivalent to its second largest city of Alice Springs (see Payer and Taylor, 2015). These examples highlight that associations between population size and economic growth are not linear in northern economies, as they tend to be in the larger urban-focused southern economies (see Carson et al., 2011; Carson 2011b).

Theories on 'what matters up north' for the causes and consequences of population change have begun to emerge from international cross-comparative studies on northern parts of developed nations. One theory (Carson et al., 2011) has proposed the systems of human interaction (demography, economics, social systems, health systems etc.) are different in sparsely populated areas such as northern Australia in comparison to urban or rural zones. These differences can be conveniently described using eight words that start with 'D' – detailed, diverse, discontinuous, dynamic, dependent, delicate, distant, and disconnected. The tenet is northern peripheral populations do not 'behave' like others, and demographic change can and does occur along non-standard pathways in comparison to other parts.

The Green Paper has identified some of the important differences in the population structure of Northern Australia including (paraphrased from Australian Government, 2014a):

- High concentrations of population in urban areas (particularly Darwin, Cairns and Townsville);
- Great diversity and polarity in the demographic and socio-economic characteristics of settlements and their residents (especially comparing Indigenous to other residents);
- Disparate population growth rates between urban and other areas; and
- The prevalence of a large number of small and very remote settlements away from coastal zones.

These characteristics received no specific attention in the White Paper and instead a target approach was proffered - large increases to the size of major cities in the north and to the size of the region as a whole. These White Paper population targets raise many questions about why and how such goals might be imperative. Not least is the issue of environmental carrying capacity and the potential for damage to fragile northern ecosystems from an aspired four-fold increase in population. Furthermore, and similar to previous northern development initiatives, there is scarce consideration about the population characteristics which might be considered as desirable (in terms of age, gender, skills, education and so on) in difference to pre-existing resident characteristics in order to facilitate economic growth aspirations for the north. In light of the large differences in the characteristics of the population in the north, the reduction in granularity around population aspirations evident in the White Paper (compared to the Green Paper) is interesting. While it may be reflective of limited understanding in policy circles about how populations in the north can contribute to harnessing opportunities for economic development, the rollout of White Paper initiatives must be informed by knowledge of baseline demographic conditions and understanding about how these might change under future development scenarios.

3. Sources of data and methods

The analyses in this chapter is primarily based on custom tables designed and extracted from the 2006 and 2011 Australian Censuses, as well as from Australian Bureau of Statistics (ABS) and Department of Immigration and Border Protection materials. Northern Australia is defined the same as the Green and White Papers (see Figure 1 above) and is the area to the north of the Tropic of Capricorn but also including the Alice Springs region of the NT, in recognition of its importance for servicing surrounding communities and industry (Australian Government, 2014a). In this study we replicated the definition in the Green Paper by developing a custom geographic area based on Statistical Areas Level 2 units to specify and extract customised Census tables using the ABS software Table Builder. The boundary of Northern Australia extends across parts of the states of Queensland and Western Australia and encompasses the whole of the NT. Areas straddling both northern and southern Australia were allocated according to where the majority share of their resident population is located.

The Green Paper identifies the cities of Townsville, Cairns, Darwin, Mackay, Rockhampton, Gladstone and Karratha as the key urban areas (or ‘zones’ as they are labelled) in northern Australia. Interestingly, while the geographic scope of the policy includes Alice Springs which is larger than Karratha, this city is not mentioned in the context of growth in the urban zones of northern Australia. Our analysis of urban versus other populations and socio-economic change in Northern Australia incorporates those cities defined as ‘Significant Urban Areas’ by the Australian Bureau of Statistics in its publication *Regional Population Growth* (various editions). These are Townsville, Cairns, Darwin, Rockhampton, Mackay, Alice Springs, Mount Isa, Port Hedland, Yeppoon, Broome, Karratha and Emerald.

4. Findings

In the first part of the results section, we present baseline demographic and socio-economic indicators for the region. We then analyse and comment on the population targets in the White Paper before analysis of the three key population aspirations identified in the Green Paper (substantially increasing the population of urban zones in northern Australia, improving internal migration flows, and increasing international migration and the retention of international migrants).

Baseline demographic and socio-economic indicators for Northern Australia

Northern Australia comprised approximately 41 per cent of the national land area but only 5.2 per cent (1.2 million residents) of the total Australian population in 2011. This proportion was consistent with five years prior (Table 1). Applying linear growth rates would see the 2014 population estimated to be around 1.3 million. Whilst overall population growth from 2006 to 2011 was 12% (compared to 8% elsewhere), the overseas born population grew by 33%, such that their representation in the population increased from 13% to 16% (compared to 27% in the rest of Australia by 2011). Meanwhile, the proportion of Australian Indigenous people living in the north fell by 2% and the ratio of men per 100 women (known as the gender ratio) increased from 105 to 107, but remained the same in southern Australia (at 97 men per 100 women).

Table 1 – Baseline demographic indicators for northern Australia

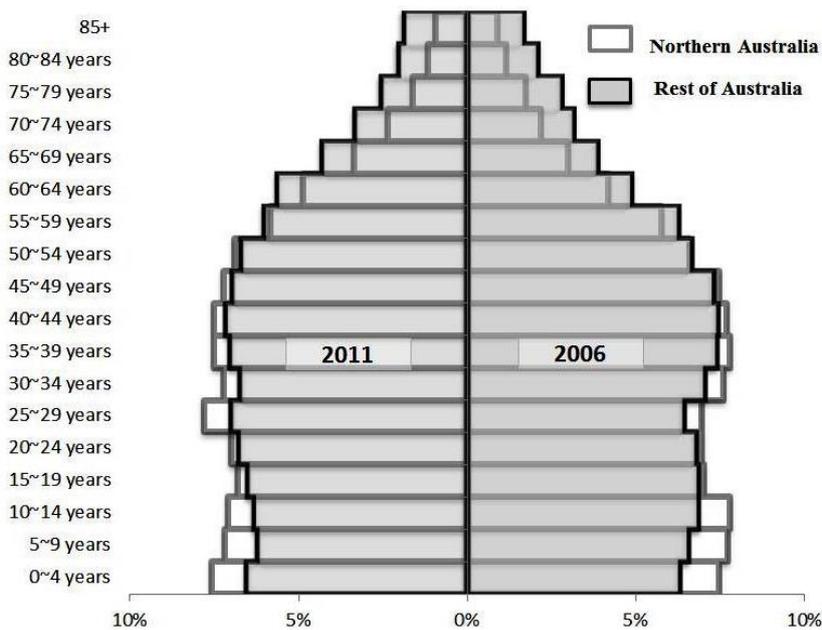
	2006	2011	Change
Population of North Australia (no.)	1,080,682	1,206,090	12%
Population elsewhere (no.)	19,965,922	21,592,093	8%
Residents of North Australia born overseas (%)	13%	16%	33%
Australian's living in North Australia (%)	5%	5%	12%
Indigenous Australians living in North Australia (%)	30%	28%	12%
Males per 100 females in North Australia (versus rest of Australia)	105 (97)	107 (97)	+2 men (no change)

Source: Author calculations extrapolated from ABS Table Builder software

The resident population’s age structure in Northern Australia differs significantly from the rest of Australia with a much younger population evident. Some 22% of the population were aged less than 15 years in 2011 compared to 19% in the rest of Australia, while for the Indigenous

population in northern Australia this was 35% compared to 20% for other residents. Indigenous residents constituted 15% of the population (around 140,000 residents) in 2011 (Figure 2). Conversely, seniors were under-represented in northern Australia where 9% of the population were aged 65 years and over compared to 14% in the rest of Australia. A ‘bubble’ in the age structure for northern Australia is evident at 25-29 years with a higher proportion evident in subsequent working ages up to 55 years.

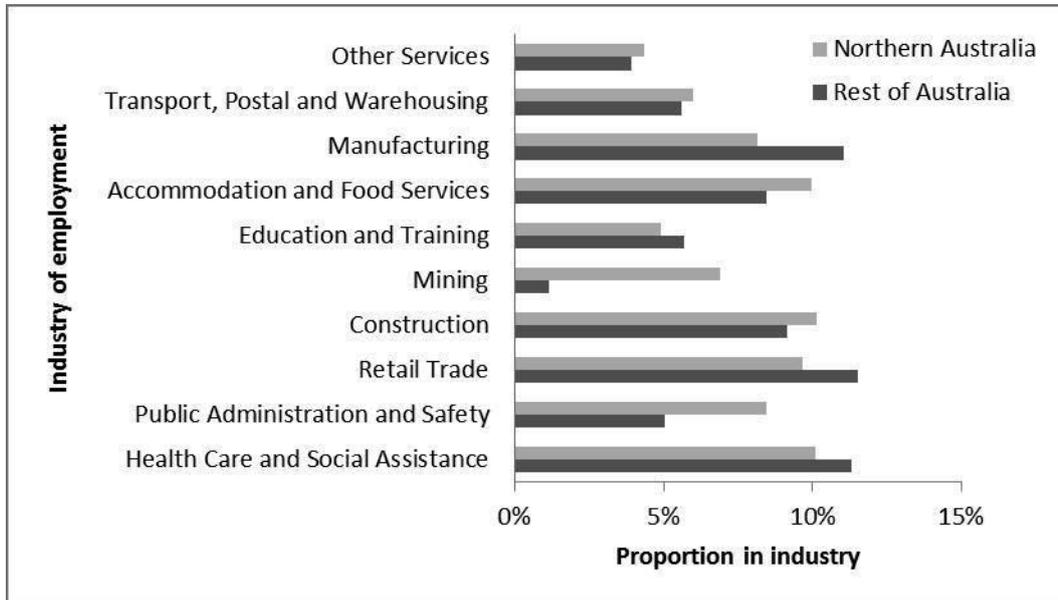
Figure 2 – Age-sex structures for northern and the Rest of Australia (left chart), and northern Australian Indigenous and non-Indigenous residents (right), 2011



Source: Author calculations extrapolated from ABS Table Builder software

The top ten industries for employment in Northern Australia are shown in Figure 3. These account for 79% of employment compared to 73% for the top ten industries in the rest of Australia (signifying a greater reliance on fewer industries). Mining, Public Administration and Safety (including defence) and Accommodation and Food Services were more prominent in the north.

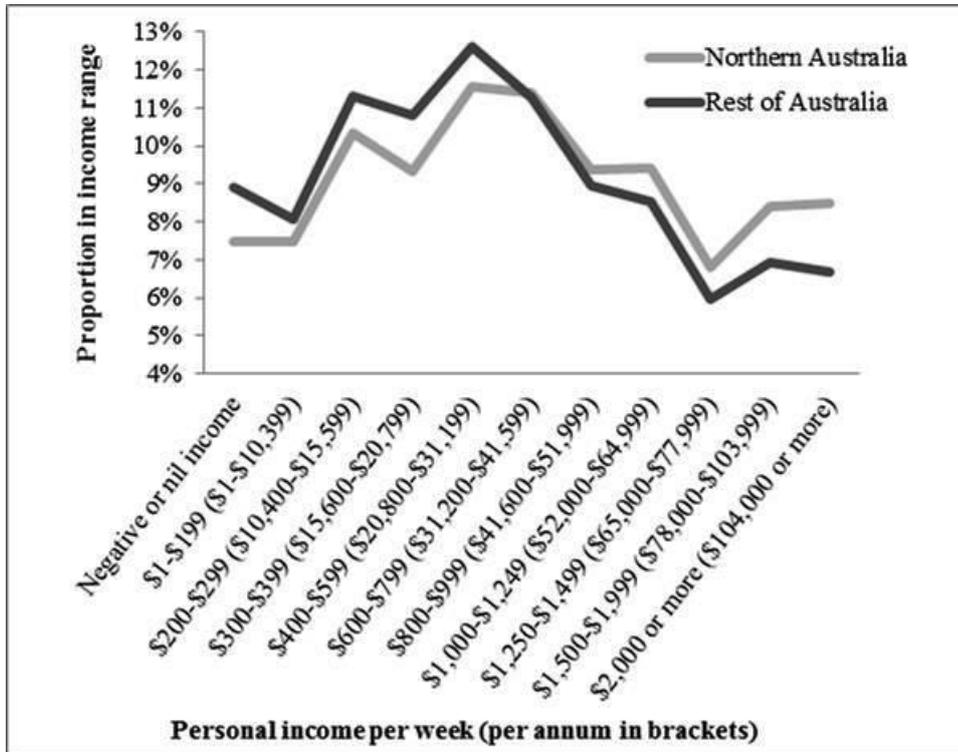
Figure 3 - Industry of employment, 2011



Source: Author calculations extrapolated from ABS Table Builder software

Incomes in Northern Australia were higher on average than elsewhere in 2011, with the exception of Indigenous residents. Despite their low incomes in comparison to others, a third of Indigenous residents earned \$1,000 a week or more compared to 28% for the rest of Australia (Figure 4) and a lower proportion had very low incomes of under \$200 per week. While mining is a prominent northern industry, it was only the fifth largest employer in the north in 2011. Substantial discussion and debate on the practice of fly-in-fly out (non-resident) workers across the north has transpired, and in particular for large resource based projects. Nevertheless, non-resident workers were prominent in other industries in the north in 2011 including in the Public Administration & Safety, and Health Care & Social Assistance industries. Numbers of non-resident workers in northern Australia grew by around 40% during 2006 to 2011 with 75% of these being males and with around double the proportion of averaging weekly earnings of more than \$1,500.

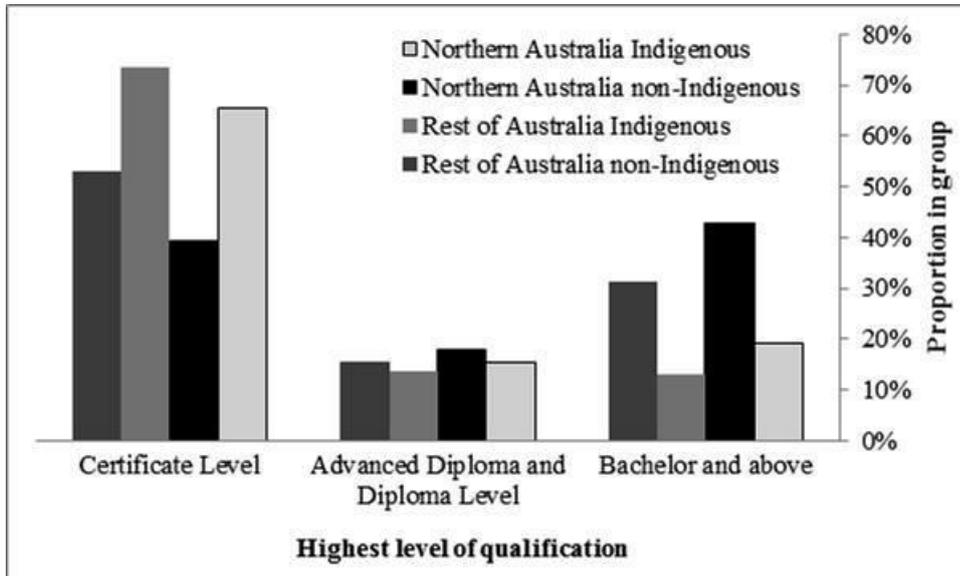
Figure 4 - Northern Australia income distributions, 2011



Source: Author calculations extrapolated from ABS Table Builder software

Almost half of Indigenous residents in the north were not in the labour force in 2011 compared to 26% for non-Indigenous people (Table 2). The Indigenous unemployment rate was three times higher than for non-Indigenous people at the same time. Educational data on individual’s highest post-school level of qualifications are an indicator of the overall level of skills in the community. For those with a post-school qualification, a smaller proportion of non-Indigenous people held a Bachelors level or above qualification (19% compared to 31%) in 2011. However, for Indigenous people the proportion with a Bachelor level or above qualification is higher in northern Australia (Figure 5). A far higher proportion of Indigenous people in northern and southern Australia hold Certificate level qualifications.

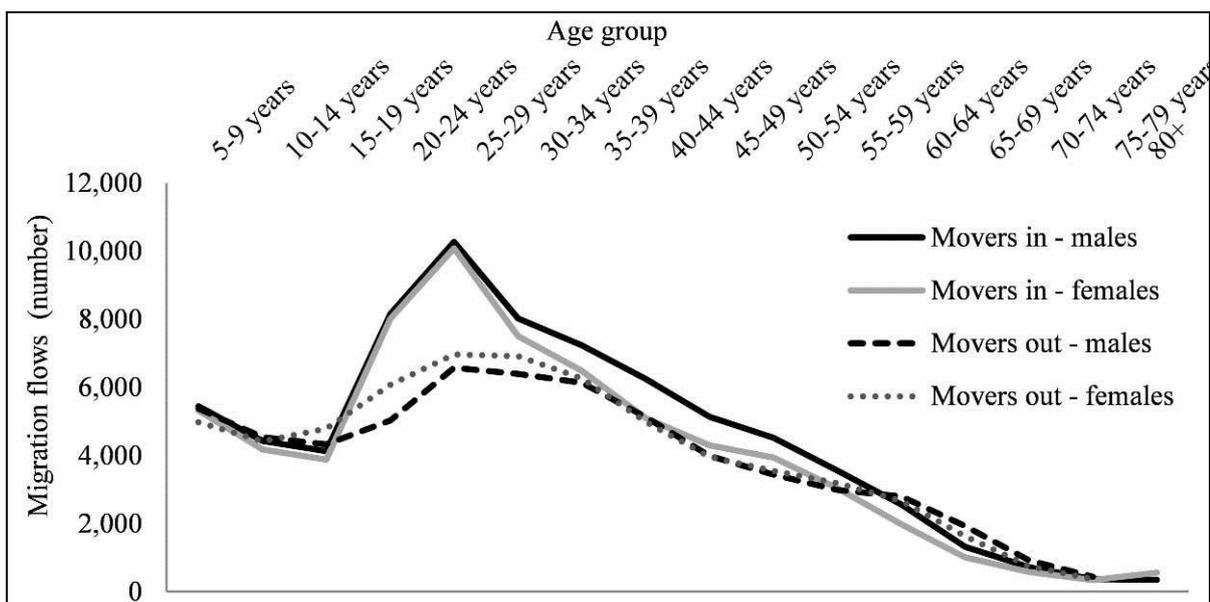
Figure 5 - Highest level of post-school qualifications by Indigenous status, 2011



Source: Author calculations extrapolated from ABS Table Builder software

As a measure of the capacity for northern Australia to develop the industrial and services sectors, improving Internet uptake rates is an important pre-cursor and, indeed, a number of Green Paper submissions identified a lack of information communications technology infrastructure. In 2011, 21% of households in northern Australia did not have any form of Internet connection, compared to 14% in the rest of Australia (Figure 6). Of those households in the north who had a connection in 2011, less had broadband connections compared to the rest of Australia (71% compared to 80%).

Figure 6 - Type of Internet connection for households, 2011



Source: Author calculations extrapolated from ABS Table Builder software

Analysis of the White Paper population targets

The White Paper articulates the dual targets of having several cities of more than a million residents and a population in Northern Australia of between four and five million residents by the year 2060. Table 3 shows the estimated 2014 population for the larger northern cities and towns with the final column demonstrating the additional annual population growth (over and above the average realised for 2004 to 2014) required between 2015 and 2060 for each to reach a population of one million. Although the additional growth rates required for some cities (notably Cairns, Townsville and Greater Darwin) may appear to be low and achievable, in reality accomplishing these year on year is highly unlikely. This is because the average annual growth rates during the decade leading up to 2014 were well above long-term averages. Growth rates are anticipated to be well below these peaks in the near future. For example, the ten year average growth rate for Greater Darwin (during 2004 to 2014) was 2.8%, slightly above the average from 1991 to 2014 (2.7%). To achieve 1 million residents by 2060 the city would need to grow twice as fast (by 4.5% per annum). The second factor to consider in assessing the likelihood of achieving the targets is that just one year of below target growth will require growth rates in subsequent years to be higher still to effect a growth 'catch up'.

Table 3 - Population estimates and growth rates required effect White Paper population targets

	2014 Population Estimate	Target population	Difference	Av. Growth p.a. needed to reach 2060 target	Av. Annual growth (2004 to 2014)	Additional growth p.a. needed 2015-60
Alice Springs	28,667	1,000,000	971,333	8.2%	0.8%	7.4%
Broome	17,311	1,000,000	982,689	9.4%	2.3%	7.1%
Cairns	158,985	1,000,000	841,015	4.2%	2.9%	1.3%
Darwin	139,617	1,000,000	860,383	4.5%	2.8%	1.7%
Karratha	26,649	1,000,000	973,351	8.4%	4.9%	3.5%
Mackay	123,383	1,000,000	876,617	4.8%	2.8%	1.9%
Port Hedland	16,810	1,000,000	983,190	9.5%	2.3%	7.2%
Rockhampton	83,439	1,000,000	916,561	5.7%	1.5%	4.2%
Townsville	192,038	1,000,000	807,962	3.7%	2.7%	1.0%
Northern Australia	1,290,067	4,500,000	3,209,933	2.8%	2.3%	05.5%

Source: Author calculations extrapolated from ABS Table Builder software

For the region as a whole to reach 4.5 million residents (half way between four and five million) additional growth of 0.5% per annum will be required. While on the surface this rate may not appear to be particularly high, achieving this would require a large transformation in the growth dynamics of the region. Not least, almost all of the growth in the region is presently in the major centres with the rest of the region in stagnation or decline. Consequently, cities would require growth rates over and above those shown in Table 3 to compensate for low growth elsewhere. In the following sections, we discuss some of the reasons for these findings by way of examining the population targets and aspirations documented in the Green Paper.

Analysis of the Green Paper population targets and ambitions

This section comprises analysis of demographic and socio-economic characteristics of Northern Australia pertinent to assessing the challenges and opportunities associated with the three broad population-related ambitions outlined in the Green Paper for Developing Northern Australia.

I. Significantly growing northern Australia's urban zones

In 2011, the urban zones of Northern Australia (as defined above) accounted for 69% of the population. The urban based population grew by 18% from 2006 to 2011, compared to just 3% for the remainder of the region. Indigenous residents also increasingly gravitated towards urban zones increasing by 21% in those places over the five-year period (Table 4). However, the proportion of population in urban zones who were Indigenous in 2011 fell, while rising in the remainder of the region, indicating relatively large growth in the non-Indigenous population in urban areas since 2006.

Table 4 – Demographic indicators for Urban Zones in Northern Australian, 2006 and 2011

Demographic indicators	2006		2011	
	Urban zones	Remainder	Urban zones	Remainder
Population share of the region	57.1%	42.9%	60.6%	39.4%
Indigenous share of the region	34.6%	65.4%	37.5%	62.5%
Indigenous proportion in population	9.1%	22.7%	9.3%	23.8%
Proportion born overseas	15.2%	10.3%	17.7%	12.2%
Men per 100 women	102.6	107.5	102.5	113.6
Under 15	22.1%	24.2%	21.5%	22.3%
Over 65	8.7%	9.2%	9.2%	9.8%
Dependency ratio	30.8%	32.2%	30.7%	32.1%

Source: Author calculations extrapolated from ABS Table Builder software

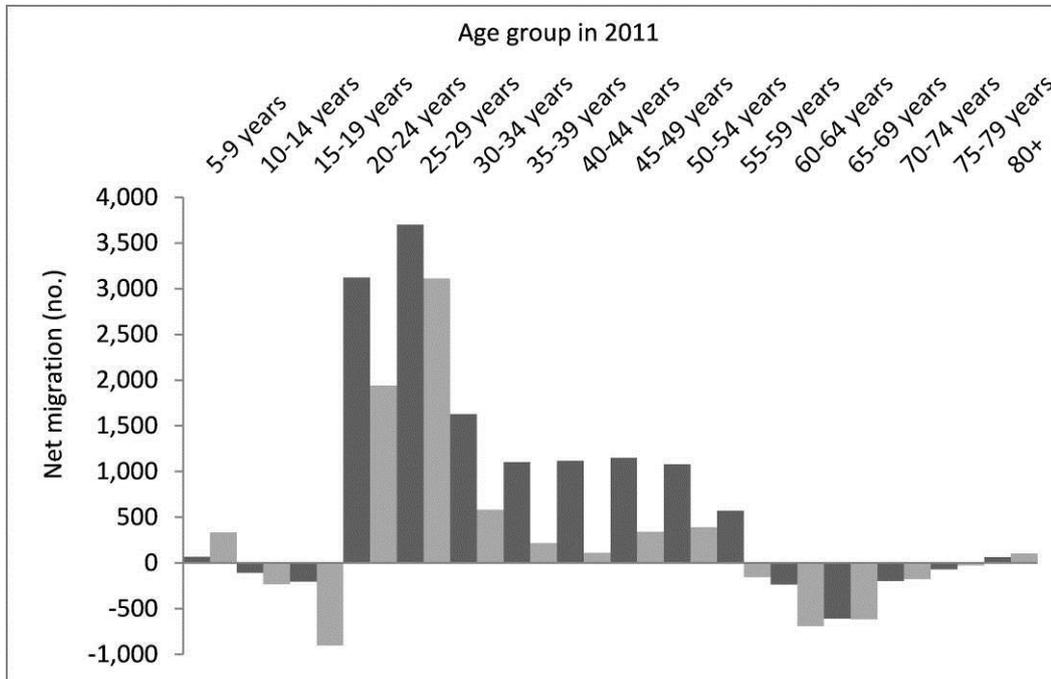
There were 104 men for every 100 women in northern urban zones in 2011 compared to 113 per 100 in the remainder of the region. This male bias in the population increased for both areas from 2006 to 2011, especially outside of the urban zones. Meanwhile, urban zones featured a larger and increasing share of overseas born migrants in the population at 18% in 2011 compared to 11% elsewhere in the north. The proportion of the population under 15 years of age was around 22% across the north and remained consistent during 2006 to 2011. However, the proportion aged 65 years and over grew in both the urban zones and remainder of Northern Australia from 2006 to 2011.

II. Improve net internal migration flows between the north and the rest of Australia

Overall, net interstate migration to Northern Australia during 2006 to 2011 was 16,500 persons, with three-quarters attributable to the non-urban areas of the north. Growth in urban areas meanwhile has been driven by international migration, natural increase and internal migration within the region (to urban zones from other areas within). Critical to improving net interstate flows for Northern Australia is knowledge about who comes and who leaves through interstate

migration. Figure 7 demonstrates there is a concentration of interstate migration, in both directions, in persons aged in their 20s and 30s. The broad shapes of the in and out migration profiles are similar for men and women.

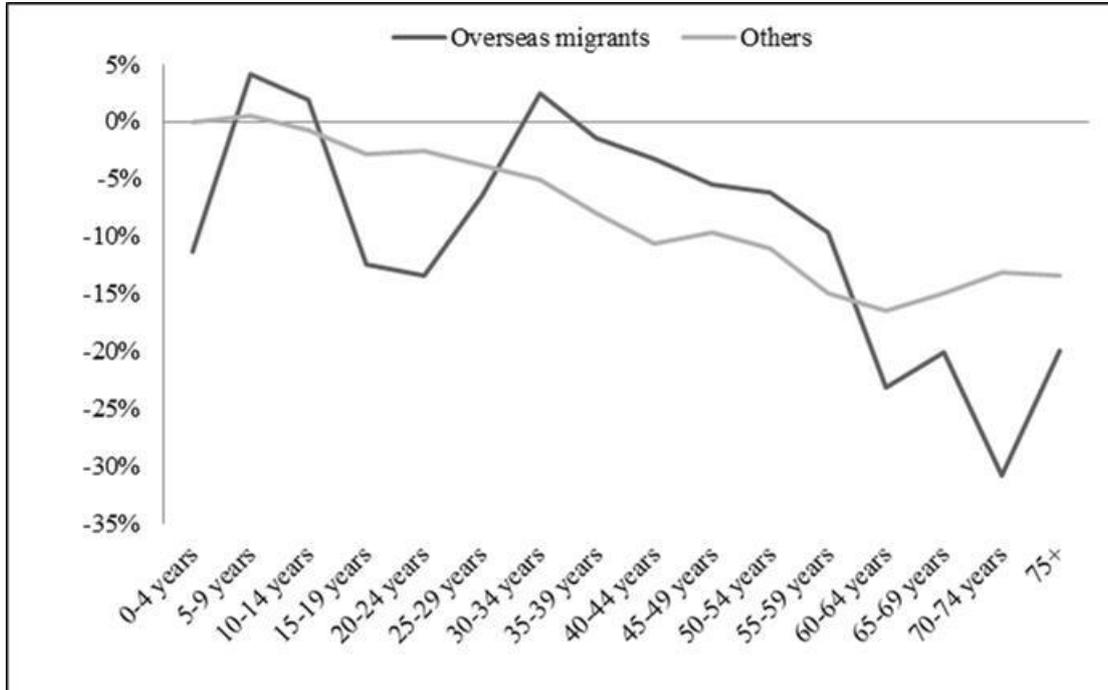
Figure 7 – Northern Australia migration age profiles, 2006 to 2011



Source: Author calculations extrapolated from ABS Table Builder software

Data also show a net positive contribution to population growth from interstate migration across most ages, except those 55 years and older and those aged 10-19 years (Figure 8). The former highlights the loss of retirees and seniors while the latter suggests there is a significant ‘brain drain’ to southern areas, particularly for females, to pursue further education. The gender differences in net interstate migration also validate the progression of the region towards a greater male bias with 10 extra men per 100 women moving into the region but 3 fewer men per 100 women moving out.

Figure 8 - Net interstate migration by age, northern Australia, 2011



Source: Author calculations extrapolated from ABS Table Builder software

Examining the reasons for people migrating away from Northern Australia assists to identify strategies for improving overall internal migration flows between the north and south of Australia. Census data provide some indications on factors associated with leaving. Those employed in the Public Administration and Safety and Education and Training sectors were more likely to have left, as were those who were unemployed. Those not participating in the labour force, meanwhile, were more likely to have stayed. Although no region-wide research on the motivations and triggers for leaving Northern Australia for interstate are available, research specifically for the NT provides some clues. A 2006 survey of people who had left the NT identified financial incentives, improvements to health services, career opportunities and housing subsidies as the main incentives that might attract them back as residents (Cunningham and Beneforti, 2008). Likewise, a large survey of NT seniors’ reported that those considering leaving the NT identified the cost of living (and particularly housing), as a motivator for leaving; as well as the desire to be closer to family (Zeng et al., 2015). However, none of these data incorporates full accounts of movements into and out of the region as they preclude non-resident workers who grew markedly in size during 2006 to 2011 (for example, by 35% in the NT).

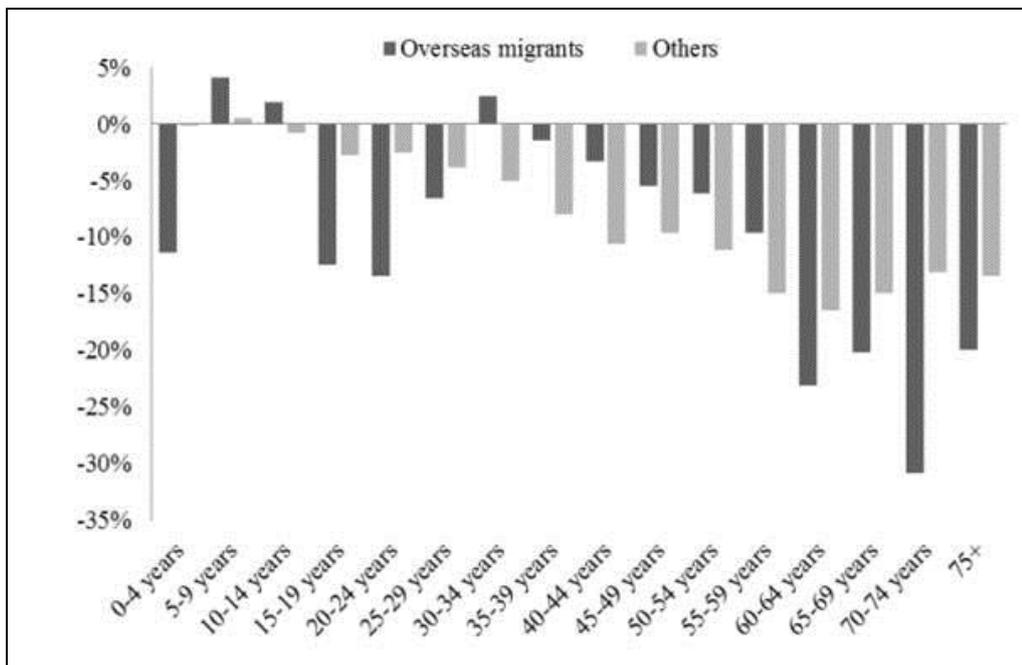
III. Increase international migrant numbers in the north

Analysis earlier in this chapter shows that international migration is increasingly important for population growth in Northern Australia. Our analysis of Census data suggests significant structural and compositional differences between international migrants to Northern Australia and the rest of Australia exist, as well as between those who arrived to the north during 2006-2011 (the ‘new arrivers’) and longer-term overseas born residents of the north (who arrived prior to 2006). Not least, the proportion of overseas born in the population of Northern Australia

remains significantly below the rest of Australia at 16% compared to 27%. This suggests a potential to increase numbers in the north, however, realising increased shares of international migrants will depend on policies that are targeted towards a complex range of issues, aside from those associated with visas and the use of skilled workers from overseas. These include redressing existing internal distributions of international migrants within Australia, which have long been heavily skewed towards the capital cities and their surrounding urban areas. In Queensland, for example, around 70% of international recent arrivers settled in Brisbane or on the Gold Coast; in Western Australia, around 90% of all settled in Perth, while in the NT 75% of recent migrants settled in Darwin or Palmerston. Northern jurisdictions have attracted a low per cent of recent migrants to the individual States or Territory (Department of Immigration and Border Protection, 2014). Outside of the large population centres in the north this is lower still.

A further barrier to more substantial international migration flows to the north is attracting and retaining women. The gender ratio for overseas born in the north in 2011 was 119 men per 100 women (higher than for others at 107 per 100), and migration flows to and from the region show males contributing at three times the rate on a net basis. The scale of the female deficit in the north is evident in Figure 9 which shows the ‘missing’ females in the north compared to the rest of Australia, and comparing overseas born females and others. Large deficits of overseas born females exist at 0-4 years and in the late teens to early 20s, as well as from 60 years onwards. For non-migrants, deficits are relatively large at all ages from 30 years on, peaking in pre and post-retirement years (55 years and above).

Figure 9 – The ‘missing’ women of northern Australia, 2011



Source: Author calculations extrapolated from ABS Table Builder software

Note: These calculations show the per cent difference in the number of women per 100 men between Northern Australia and the rest of Australia.

5. Discussion and Conclusions

Much of the analysis presented in this brief involves comparisons and contrasts at a range of geographic and demographic scales: Northern Australia compared to the rest of Australia; urban areas in the north compared to others; overseas born compared to others; and so on. These are just some of the levels at which the significant differences in the demographic and economic makeup across the region and between the region and elsewhere can be observed. There are also, of course, substantive intra-regional and cross-border differences warranting further research. For example, some areas like the Pilbara are in the midst of a significant downturn as the price of Iron Ore has plummeted, while the economy of the NT is purportedly booming from large resource projects but at the same time it has lost record numbers of residents through net negative interstate migration during 2013-2014 (Payer and Taylor, 2015).

These sorts of intra-regional differences in population systems and in the interrelationships between population and economy are acknowledged to some extent in the White and Green papers, however, there is little credence to the importance of such differences for economic and population growth. Population systems in the north are relatively discrete, having been built and maintained around specific economic, strategic and other functions, which may well be temporary and certainly re-enforce the sorts of population imbalances common across northern jurisdictions. Discrete areas of economic activity and population settlements themselves are poorly integrated when it comes to transport and the flows of labour and capital (Carson, 2011).

What is common across the region is an increasing dependence on externally sourced capital and labour. Such conditions make the challenge of 'developing from within' difficult and engender circumstances under which divergences in population and socio-economic conditions between sub-groups, for example between urban and non-urban residents or educated and less educated residents, can be expected to maintain and grow (Taylor, et al., 2011). These sorts of challenges are long standing for northern peripheral areas:

Taking the structure and functioning of the Arctic regional economies and the degree of economic dependence as a point of departure... The fundamental problem is still the dependency Arctic regions have on their mother economies in the south. (Winther, 2010, p. 1)

The loss of university entrants to southern regions also emphasises the 'brain drain' and loss of future innovation capacity from established migration patterns.

Several indications exist of a growing divide in the north between employed, educated and affluent residents (and non-residents), who's migratory patterns align with continuing such lifestyles, and a non-migratory, under-educated and low-income cohort. The latter includes, but certainly is not limited to, the many Indigenous residents in the north. Current approaches for northern development may identify these issues, but provide very little in the way of direct suggestions on avoiding or rectifying the potential for a 'stuck underclass' to emerge and grow. Conversely, population aspirations in the Green Paper may actually enhance the worrying trend towards a further male bias, a highly mobile high-income class and discrete geographical areas

where ‘boom and bust’ cycles attract and then repel increasing numbers of affluent men (Taylor and Carson, 2013). The Pilbara in Western Australia and Nhulunbuy in the NT (both areas suffered significant out-migration when the mining operations ceased) are prime examples where the critical question is ‘who is left’ after those who have the means to leave have done so?

The focus on urban growth, interstate migration and growing overseas migrant numbers in the Green Paper says little about how the north might grow from within. Urban zones are already far outstripping ‘the rest’, international migrants are growing significantly (especially the skilled intake), and interstate migration flows are supporting the types of economic activities which might lead to further growth. This leaves the impression of both unrealistic targets in the White Paper extemporaneous incorporation of population ambitions embedded in the Green Paper. While the latter certainly incorporates some sophisticated thinking on issues of population change and growth, the approach is timid towards broaching the difficulties of encouraging growth from within. The current iteration continues a long-entrenched focus on securing growth from externally sourced labour and capital and on sending goods and services overseas; notably to Chinese markets portrayed in both documents as ‘ready and waiting’ to consume northern outputs in large volumes.

Exploration of the baseline data here might also lead us to question whether and why a much bigger population in the north is inherently desirable, particularly if it is at the expense of a more appropriate population composition. The tenet of the present and past inquiries and reports on the potential of the region is that bigger is best and this philosophy negates the importance and influence of the complexity and diversity of population systems in the north. A great array of settlement types, sizes, growth rates, ethnic compositions, and workforce profiles (to name a few population characteristics) are found in Northern Australia. It is unrealistic to anticipate that growing the overall population size (in the White Paper a four-fold increase was targeted) will ‘deliver’ the required demographic and economic outcomes for up-scaled development. A more nuanced approach to understanding populations is preferable, with economic policies and investments informed by comprehensive scenario modelling using population projections to ascertain likely population outcomes.

Two further and prominent demographic issues are apparent for Northern Australia development. First, and in line with global trends in developed nations, its population will age in the near future, although the onset of significant ageing is taking place a generation later than in the rest of Australia (Zeng, et al., 2015). Population ageing in the north will be profoundly different due to the influence of rapid ageing in the Indigenous population. In the NT, for example, above 5% growth per annum (although from a small base) is projected for Indigenous residents aged 65 years or more in the next 25 years (Zeng, et al., 2015). Residents in very remote areas will require specific health and other services to facilitate ageing ‘in place’, likely to be the preferred choice for most seniors.

Secondly, the spatial distribution of Aboriginal and Torres Strait Islander people in Australia has undergone accelerated and dramatic changes in recent decades with increasing proportions living in major Australian cities and a lower proportion living in the north (Taylor and Bell, 2013). Since

WWII, for example, the Indigenous share in States and Territories located wholly outside of Northern Australia (i.e. NSW, VIC, SA, TAS, and ACT) more than doubled from 21% to 48% (ABS, 2014). More recently, the Indigenous share in Northern Australia declined from 30% to 28% from 2006 to 2011. Despite absolute growth, the share living in the north has declined. During 1981 to 2006, for example, the Indigenous population of the NT grew by 85%, but its share of the national Indigenous population (which grew by 185%) fell from 18% to 12%, then to 10% in 2011 (Taylor & Bell, 2013). This has affected finances for Northern Australia by changing the distribution of GST revenues to the States and Territories and, consequently, the capacity for individual governments to address Indigenous outcomes in northern jurisdictions. The NT Government has already seen its GST revenues fall by 4% as a result. While re-negotiations on processes for distributing the GST are currently in the political spotlight (for example, Australian Broadcasting Corporation, 2015), the issue of Indigenous disadvantage as it translates to financial needs and distributions for individual States and Territories is extremely complex and under-researched and a region-wide approach to understanding and addressing the issue will be necessary.

On the whole, the *demography of developing Northern Australia* features a range of population and settlement characteristics highly related to past pathways for economic development and the role of the region in national and strategic agendas (for example, as strategically important militarily). These present a range of challenges and opportunities. An increasing focus on international migrants and non-resident workers creates opportunities around education and tourism related services. Numbers of intergenerational families are growing, helping to balance out the heavy losses of residents in pre and early retirement ages and by providing social and financial capital to communities, in spite of population ageing. However, the increasing male bias the population of Northern Australia signifies ongoing demographic and social imbalance in communities. To achieve the targets provided in the White Paper will require a very 'big Australia'. Past policies promoting a large population have attracted significant public backlash and it is interesting that the Government has chosen to incorporate lofty aspirational targets.

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